

Passive intrinsically safe pressure transmitters

TM/Ex



Version: 28.03.2012

Technical Specifications

Pressure measuring range (bar)

	0.1 ... 0.5, (1)	> 0.5 ... 2	> 2 ... 25
Overpressure	3 bar	3 x FS (≥ 3 bar)	3 x FS
Burst pressure	> 200 bar	> 200 bar	> 200 bar
Accuracy, (4), (\pm % FS)	≤ 0.5	$\leq 0.5 / \leq 0.25$	$\leq 0.5 / \leq 0.25$
Thermal shift, (\pm % FS/$^{\circ}$C)			
Zero point 0...70 $^{\circ}$ C	≤ 0.06	≤ 0.03	≤ 0.015
Zero point -25...85 $^{\circ}$ C	≤ 0.08	≤ 0.04	≤ 0.02
Span 0...70 $^{\circ}$ C	≤ 0.015	≤ 0.015	≤ 0.015
Span -25...85 $^{\circ}$ C	≤ 0.02	≤ 0.02	≤ 0.02
Response time,	< 0.1ms / 10...90% FS	< 0.1ms / 10...90% FS	< 0.1ms / 10...90% FS
Long term stability, (5)	< 0.5% FS / < 4 mbar	< 0.2% FS / < 4 mbar	< 0.1% FS / < 0.2% FS

	> 25 ... 600, (2), (3)	> 600 ... 1000
Overpressure	3 x FS ($\leq 850 / \leq 1500$ bar)	1500 bar
Burst pressure	> 850 / ≤ 1500 bar	> 1500 bar
Accuracy, (4), (\pm % FS)	$\leq 0.5 / \leq 0.25$	$\leq 1 / \leq 0.5$
Thermal shift, (\pm % FS/$^{\circ}$C)		
Zero point 0...70 $^{\circ}$ C	≤ 0.015	≤ 0.015
Zero point -25...85 $^{\circ}$ C	≤ 0.02	≤ 0.02
Span 0...70 $^{\circ}$ C	≤ 0.015	≤ 0.015
Span -25...85 $^{\circ}$ C	≤ 0.02	≤ 0.02
Response time,	< 0.1ms / 10...90% FS	< 0.1ms / 10...90% FS
Long term stability, (5)	< 0.1% FS / < 0.2% FS	< 0.1% FS / < 0.2% FS

(1) 50 mbar on request

(2) Titanium available ≤ 400 bar (burst pressure > 550 bar)

(3) Overpressure and burst pressure 1500 bar (stainless steel) optional

(4) Zero based accuracy according to DIN16086, incl. hysteresis and repeatability at ambient temperature

(5) 1 year (typ. / max.), the long term stability can be improved by ageing (burn-in) the sensor

Temperature range

Operating temperature	-40...125 $^{\circ}$ C
Process temperatur	-40...150 $^{\circ}$ C
Storage temperatur	-40...125 $^{\circ}$ C

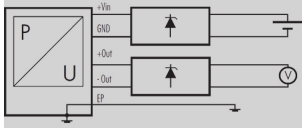
Typical output signal (bar)

	≤ 0.25	> 0.25...0.6	> 0.6...1
Output signal, (1), (mV)	15	25	35

	> 1...2.5	> 2.5
Output signal, (1), (mV)	50	100

(1) At nominal pressure, 10 V DC

Electrical specifications

Circuit diagram	
Input impedance	> 10 kOhm
Bridge resistance, (typ.)	3 kOhm
Supply voltage, (typ. / max.)	10 / 15 V DC

ATEX Approval

Certificate, (1)	SEV 08 ATEX 0142		
Gas	II 1G Ex ia IIC T3 / T4 / T6	EN 60079-0 / -11 / -26	
Dust	II 1D Ex iaD 20 IP6x Tx°C	EN 61241-0 / -11	
Temperature class, (2)	T6	T4	T3
Ambient temperature	-25...55 °C	-25...85 °C	-25...85 °C
Process temperature	-25...55 °C	-25...110 °C	-25...150 °C
Maximum values of the connection circuit	20 V / 300 mA / 1.2 W		

(1) For detailed Ex specifications see certificate and operating and safety instructions

(2) Without any information about temperature class the transmitter will be delivered for T4

Physical specifications

Materials	
Transducer	Stainless steel (316L / 1.4435), titanium (Gr. 2), (1)
Housing	Stainless steel (316L / 1.4404), titanium (Gr. 2)
Seals	Viton (Standard), EPDM, Kalrez
Cable	PUR, PTFE

(1) Hastelloy (C-276) on request

Equipment

Overview

10.00.0091	Accessories overview
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Additional documents

Operating and safety instructions

	Article number
10.88.0369	DMM030

Ordering information

		X. XXXX.	XXXX.	XX.	XXX
Type					
	TM/EX	20			
Pressure type					
	Gauge	1			
	Absolute (vacuum)	2			
	Sealed gauge	3			
Pressure measuring range					
	Any pressure measuring ranges between 0...100 mbar and 0...1000 bar available, (1), (2), (3)	XX			
Process connection					
	G 1/4 F, (Fig. 1)	00			
	G 1/4 M, (Fig. 2)	11			
	G 1/4 M, manometer DIN 16288, (Fig. 3)	12			
	G 1/2 M, (Fig. 4)	13			
	G 1/2 M, frontal diaphragm, (Fig. 5)	14			
	G 1/2 M, flush diaphragm, (Fig. 6)	15			
	G 1/2 M, manometer DIN 16288, (Fig. 7)	16			
	1/2 NPT M, (Fig. 8)	19			
	1/4 NPT M, (Fig. 9)	10			
	Customized connection available	XX			
Electrical connection					
	Binder 723, 5-pin, IP 67, (Fig. 11), (4)		03		
	Binder 723, 5-pin, demountable, IP 67, (Fig. 12), (4)		43		
	MIL C26482, 10-6, IP 40, (Fig. 13), (4)		06		
	PUR cable, blue, IP 67, (Fig. 14), (5), (6), (7)		17		
	PTFE cable, (high temperature), black, IP 67, (11)		11		
	PTFE cable, blue, IP 67, (Fig. 14), (5)		22		
	Customized connection available		XX		
Output signal					
	0...mV (specified by the customer)		XX		
Accuracy					
	≤ ± 0.5 % FS			0	
	≤ ± 0.25 % FS (on request)			1	
Temperature range					
	T6 (Ta: -25...55 °C) 0...70 °C compensated (allowed process temperature: -25...55°C)			0	
	T4 (Ta: -25...85 °C) -25...85 °C compensated (allowed process temperature: -25...100°C)			1	
	T3 (Ta: -25...85 °C) -25...85 °C compensated (allowed process temperature: -25...150°C)			2	
Option 1					
	Throttle, (8)				A
	Special oil filling: ASEOL Food (for food applications)				G
	Special oil filling: Halocarbon (for oxygen applications), (9), (10)				H
	Pressure connection elastomerfree				N
	Pressure connection welded				V
Option 2					
	Electronics packed in gel: Gauge pressure				C
	Electronics packed in gel: Absolute pressure				D
Option 3					
	Version titanium				K
	Seals: Viton (standard)				U

Seals: EPDM					S
Seals: Kalrez					T
Ageing					Z

- (1) 50 mbar on request
- (2) Titanium available \leq 400 bar (burst pressure > 550 bar)
- (3) mbar, PSI, kPa etc. available
- (4) Cable socket connector not included
- (5) Please specify the required cable length and medium
- (6) Suitable for drinking water (food approved)
- (7) For operating temperature > 50°C, PTFE cable must be used
- (8) Only with pressure connection Fig. 2, Fig. 4, Fig. 7. Fig. 8 and Fig. 9
- (9) Maximum pressure measuring range \leq 270 bar (burst pressure > 400 bar)
- (10) min. Medium temperature -25 ° C
- (11) max. 130°C @ 10 mH2O, max. 110°C @ 50 mH2O

Technical drawings

Pressure Connections

Fig. 1

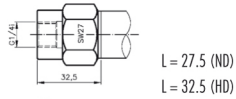


Fig. 2

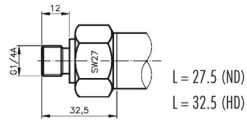


Fig. 3

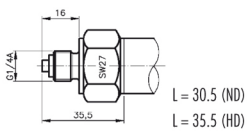


Fig. 4

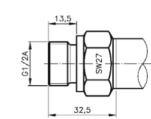


Fig. 5

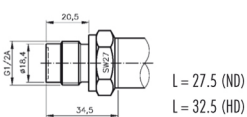


Fig. 6

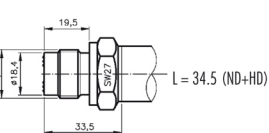


Fig. 7

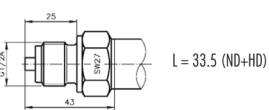


Fig. 8

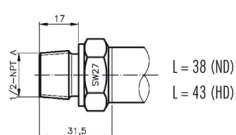
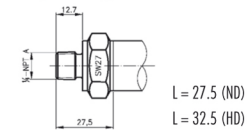


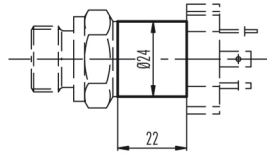
Fig. 9



L = 31.5 (ND)
L = 36.5 (HD)

Dimensions

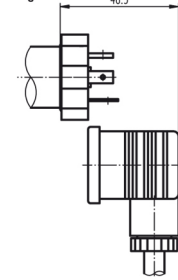
Version for media temperature up to 150°C



ND = low pressure ≤ 30 bar
HD = high pressure > 30 bar

Electrical Connections

Fig. 10



Pin	TM
1	+Vin
2	+Out
3	GND
Earth	-Out

Fig. 11

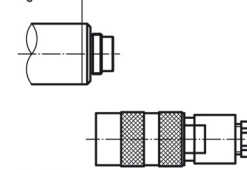
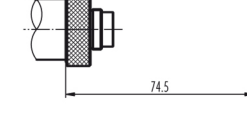
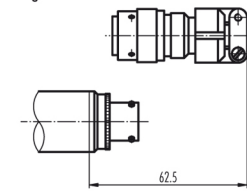


Fig. 12



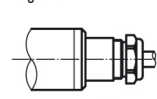
Pin	TM	TM/Ex
1	+Out	+Out
2	-Out	-Out
3	+Vin	+Vin
4	GND	GND
5		EP

Fig. 13



Pin	TM	TM/Ex
A	+Vin	+Vin
B	GND	GND
C	+Out	+Out
D	-Out	-Out
E		EP

Fig. 14



Colour	TM	TM/Ex
white	+Vin	+Vin
yellow	GND	GND
brown	+Out	+Out
green	-Out	-Out
gray		EP

Specifications may change without notice.

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